

Release notes for ENDF/B Development n-098_Cf_254
evaluation

ENDF
B-VII.dev

April 26, 2017

- **psyche** Warnings:

1. Non-threshold reaction with Q value differing from PSYCHE's expectations
FILE 3 / SECTION 102 / THE CALCULATED Q 3.53622E+08 DISSAGREES WITH THE GIVEN Q 4.60308E+06 (0): Iffy Q

```
FILE 3
SECTION 102
THE CALCULATED Q 3.53622E+08 DISSAGREES WITH THE GIVEN Q 4.60308E+06
```

- **fudge-4.0** Warnings:

1. Cross section does not match sum of linked reaction cross sections
crossSectionSum label 0: total (Error # 0): CS Sum.

WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 0.78%

2. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 1 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'6 delayed'] + gamma [total fission] [nubar]): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

3. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 2 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'6 delayed'] + gamma [total fission] [nubar]): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (9.146087e-09) is too small

4. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 3 (total): / Form 'eval': / Component 0 (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

5. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 3 (total): / Form 'eval': / Component 1 (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

6. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 4 (n + Cf254): / Form 'eval': / Component 0 (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

7. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 4 (n + Cf254): / Form 'eval': / Component 1 (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

8. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 8 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'6 delayed'] + gamma [total fission]): / Form 'eval': / Component 0 (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

9. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 8 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'6 delayed'] + gamma [total fission]): / Form 'eval': / Component 1 (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

10. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 10 (n + (Cf254_e1 -> Cf254 + gamma)): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (2.214680e-09) is too small

11. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 11 (n + (Cf254_e2 -> Cf254 + gamma)): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (1.379082e-09) is too small

12. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 13 (n + (Cf254_e4 -> Cf254 + gamma)): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (2.304029e-09) is too small

13. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 14 (n + (Cf254_c -> Cf254 + gamma)): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

14. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 15 (Cf255 + gamma): / Form 'eval': / Component 0 (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

15. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 15 (Cf255 + gamma): / Form 'eval': / Component 1 (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

16. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 16 (n + Cf254 [angular distribution]): / Form 'eval': (Error # 1): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

17. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 17 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'6 delayed'] + gamma [total fission] [spectrum]): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

18. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 18 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'6 delayed'] + gamma [total fission] [spectrum]): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

19. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 19 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'6 delayed'] + gamma [total fission] [spectrum]): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

20. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 20 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'6 delayed'] + gamma [total fission] [spectrum]): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

- fudge-4.0 Errors:

1. ENDF format insists that all outgoing fission neutrons, delayed or otherwise, have spectra. For delayed neutrons this is tough.
Reading ENDF file: ../n-098-Cf-254.endf (Error # 0): No delayed n dist

WARNING: More than one delayed fission neutron decay time but no MF = 5 data

2. Duplicate Eout in outgoing distribution
Reading ENDF file: ../n-098-Cf-254.endf (Error # 1): Bad Eout

WARNING: skipping duplicate e_out = 4603090.0, i1 = 50 6 10.0

WARNING: skipping duplicate e_out = 4603100.0, i1 = 50 7 20.0

WARNING: skipping duplicate e_out = 4603110.0, i1 = 50 8 30.0

WARNING: skipping duplicate e_out = 4603130.0, i1 = 50 9 50.0

... plus 2 more instances of this message

3. Energy range of data set does not match cross section range
reaction label 5: $n + (Cf254_c \rightarrow Cf254 + \text{gamma})$ / Product: Cf254_c / Decay product: gamma_a / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (152332.0 -> 20000000.0) vs (110875.0 -> 20000000.0)
4. Energy range of data set does not match cross section range
reaction label 5: $n + (Cf254_c \rightarrow Cf254 + \text{gamma})$ / Product: Cf254_c / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (152332.0 -> 20000000.0) vs (110875.0 -> 20000000.0)
WARNING: Domain doesn't match the cross section domain: (300000.0 -> 20000000.0) vs (110875.0 -> 20000000.0)
WARNING: Domain doesn't match the cross section domain: (500000.0 -> 20000000.0) vs (110875.0 -> 20000000.0)
WARNING: Domain doesn't match the cross section domain: (700000.0 -> 20000000.0) vs (110875.0 -> 20000000.0)
5. Energy range of data set does not match cross section range
reaction label 5: $n + (Cf254_c \rightarrow Cf254 + \text{gamma})$ / Product: Cf254_c / Decay product: gamma_b / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (300000.0 -> 20000000.0) vs (110875.0 -> 20000000.0)
6. Energy range of data set does not match cross section range
reaction label 5: $n + (Cf254_c \rightarrow Cf254 + \text{gamma})$ / Product: Cf254_c / Decay product: gamma_c / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (500000.0 -> 20000000.0) vs (110875.0 -> 20000000.0)
7. Energy range of data set does not match cross section range
reaction label 5: $n + (Cf254_c \rightarrow Cf254 + \text{gamma})$ / Product: Cf254_c / Decay product: gamma_d / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (700000.0 -> 20000000.0) vs (110875.0 -> 20000000.0)
8. Calculated and tabulated Q values disagree.
reaction label 6: $n[\text{multiplicity:}'2'] + Cf253 + \text{gamma}$ (Error # 0): Q mismatch
- WARNING: Calculated and tabulated Q-values disagree: -5647146.569366455 eV vs -6031560. eV!
9. Energy range of data set does not match cross section range
reaction label 6: $n[\text{multiplicity:}'2'] + Cf253 + \text{gamma}$ / Product: gamma_a / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (6500000.0 -> 20000000.0) vs (6055510.0 -> 20000000.0)
10. Energy range of data set does not match cross section range
reaction label 6: $n[\text{multiplicity:}'2'] + Cf253 + \text{gamma}$ / Product: gamma_a / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (6500000.0 -> 20000000.0) vs (6055510.0 -> 20000000.0)
11. Energy range of data set does not match cross section range
reaction label 6: $n[\text{multiplicity:}'2'] + Cf253 + \text{gamma}$ / Product: gamma_b / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (6500000.0 -> 20000000.0) vs (6055510.0 -> 20000000.0)

12. Energy range of data set does not match cross section range
reaction label 6: n[multiplicity:'2'] + Cf253 + gamma / Product: gamma_b / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (6500000.0 -> 20000000.0) vs (6055510.0 -> 20000000.0)

13. Energy range of data set does not match cross section range
reaction label 6: n[multiplicity:'2'] + Cf253 + gamma / Product: gamma_c / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (6500000.0 -> 20000000.0) vs (6055510.0 -> 20000000.0)

14. Energy range of data set does not match cross section range
reaction label 6: n[multiplicity:'2'] + Cf253 + gamma / Product: gamma_c / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (6500000.0 -> 20000000.0) vs (6055510.0 -> 20000000.0)

15. Calculated and tabulated Q values disagree.
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -10451435.85934448 eV vs -1.08358e7 eV!

16. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_a / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

17. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_a / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

18. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_b / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

19. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_b / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

20. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_c / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

21. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_c / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

22. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_d / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

23. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_d / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

24. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_e / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

25. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_e / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

26. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_f / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

27. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_f / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

28. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_g / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12500000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

29. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_g / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12500000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

30. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_h / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

31. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_h / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

32. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_i / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12500000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

33. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_i / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12500000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

34. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_j / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

35. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_j / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

36. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_k / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

37. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_k / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

38. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_l / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

39. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_l / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

40. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_m / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

41. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_m / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

42. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_n / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12500000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

43. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'3'] + Cf252 + gamma / Product: gamma_n / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12500000.0 -> 20000000.0) vs (10878900.0 -> 20000000.0)

44. Calculated and tabulated Q values disagree.
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -16623382.90036011 eV vs -1.70078e7 eV!

45. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_a / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (17500000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

46. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_a / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (17500000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

47. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_b / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (17500000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

48. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_b / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (17500000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

49. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_c / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (17500000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

50. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_c / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (17500000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

51. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_d / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

52. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_d / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

53. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_e / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

54. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_e / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

55. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_f / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

56. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_f / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

57. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_g / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

58. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_g / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

59. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_h / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

60. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_h / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

61. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_i / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

62. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_i / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

63. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_j / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

64. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_j / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

65. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_k / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

66. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_k / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

67. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_l / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

68. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_l / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

69. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_m / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

70. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_m / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

71. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_n / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

72. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_n / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

73. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_o / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

74. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_o / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

75. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_p / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

76. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_p / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

77. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_q / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

78. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_q / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

79. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_r / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

80. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_r / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

81. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_s / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

82. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_s / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

83. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_t / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

84. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_t / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

85. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_u / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

86. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_u / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

87. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_v / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

88. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_v / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

89. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_w / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

90. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_w / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

91. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_x / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

92. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_x / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

93. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_y / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

94. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'4'] + Cf251 + gamma / Product: gamma_y / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (18000000.0 -> 20000000.0) vs (17075300.0 -> 20000000.0)

95. Calculated and tabulated Q values disagree.
reaction label 10: Cf255 + gamma (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: 4987699.056335449 eV vs 4603080. eV!

96. Multiplicity does not match sum of linked product multiplicities!
multiplicitySum label 7: n + (Cf254_c -> Cf254 + gamma) total gamma multiplicity (Error # 0): summedMultiplicityMismatch

WARNING: Multiplicity does not match sum of linked product multiplicities! Max diff: 0.38%

97. Multiplicity does not match sum of linked product multiplicities!
multiplicitySum label 8: n[multiplicity:'2'] + Cf253 + gamma total gamma multiplicity (Error # 0): summedMultiplicityMismatch

WARNING: Multiplicity does not match sum of linked product multiplicities! Max diff: 10.15%

98. Multiplicity does not match sum of linked product multiplicities!
multiplicitySum label 9: n[multiplicity:'3'] + Cf252 + gamma total gamma multiplicity (Error # 0): summedMultiplicityMismatch

WARNING: Multiplicity does not match sum of linked product multiplicities! Max diff: 99.95%

99. Multiplicity does not match sum of linked product multiplicities!
multiplicitySum label 10: n[multiplicity:'4'] + Cf251 + gamma total gamma multiplicity (Error # 0): summedMultiplicityMismatch

WARNING: Multiplicity does not match sum of linked product multiplicities! Max diff: 93.20%

100. Calculated and tabulated Q values disagree.
fissionComponent label 0: /reactionSuite/fissionComponents/fissionComponent[@label='0'] (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: 237620778487.973 eV vs 2.204946e8 eV!

101. Calculated and tabulated Q values disagree.
fissionComponent label 1: /reactionSuite/fissionComponents/fissionComponent[@label='1'] (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: 237620778487.973 eV vs 2.204946e8 eV!

102. Calculated and tabulated Q values disagree.
fissionComponent label 2: /reactionSuite/fissionComponents/fissionComponent[@label='2']
(Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: 237620778487.973 eV vs 2.204946e8 eV!

103. Calculated and tabulated Q values disagree.
fissionComponent label 3: /reactionSuite/fissionComponents/fissionComponent[@label='3']
(Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: 237620778487.973 eV vs 2.204946e8 eV!

104. A covariance matrix was not positive semi-definite, so it has negative eigenvalues.
Section 16 (n + Cf254 [angular distribution]): / Form 'eval': / LegendreLValue L=1 vs 1
(Error # 0): Bad evs

WARNING: 9 negative eigenvalues! Worst case = -2.952935e-04

• njoy2012 Warnings:

1. Evaluation has no resonance parameters given
unresr...calculation of unresolved resonance cross sections (0): No RR

---message from unresr---mat 9867 has no resonance parameters
copy as is to nout

2. In some evaluations, the partial fission reactions MT=19, 20, 21, and 38 are given in File 3, but no corresponding distributions are given. In these cases, it is assumed that MT=18 should be used for the fission neutron distributions.
heatr...prompt kerma (0): HEATR/hinit (3)

---message from hinit---mt19 has no spectrum
mt18 spectrum will be used.

3. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (1): HEATR/hinit (4)

---message from hinit---mf6, mt 16 does not give recoil za= 98253
one-particle recoil approx. used.

4. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (2): HEATR/hinit (4)

---message from hinit---mf6, mt 17 does not give recoil za= 98252
one-particle recoil approx. used.

5. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (3): HEATR/hinit (4)

---message from hinit---mf6, mt 37 does not give recoil za= 98251
one-particle recoil approx. used.

6. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (4): HEATR/hinit (4)

- message from hinit---mf6, mt 51 does not give recoil za= 98254
one-particle recoil approx. used.
7. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (5): HEATR/hinit (4)
- message from hinit---mf6, mt 52 does not give recoil za= 98254
one-particle recoil approx. used.
8. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (6): HEATR/hinit (4)
- message from hinit---mf6, mt 53 does not give recoil za= 98254
one-particle recoil approx. used.
9. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (7): HEATR/hinit (4)
- message from hinit---mf6, mt 54 does not give recoil za= 98254
one-particle recoil approx. used.
10. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (8): HEATR/hinit (4)
- message from hinit---mf6, mt 91 does not give recoil za= 98254
one-particle recoil approx. used.
11. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (9): HEATR/hinit (4)
- message from hinit---mf6, mt102 does not give recoil za= 98255
photon momentum recoil used.
12. There is a problem with the fission energy release.
heatr...prompt kerma (14): HEATR/nheat (3)
- message from nheat---changed q from 2.204946E+08 to 2.056756E+08
for mt 18
13. Evaluation has no resonance parameters given
purr...probabalistic unresolved calculation (0): No RR
- message from purr---mat 9867 has no resonance parameters
copy as is to nout
14. The number of coefficients was too large in a covariance
covr...process covariance data (1): Cov:Too many coeff.
- message from matshd--- 160 coefficients > 2
reset and continue

• **xsectplotter** Errors:

1. ENDF format insists that all outgoing fission neutrons, delayed or otherwise, have spectra. For delayed neutrons this is tough.
(Error # 2): No delayed n dist

WARNING: More than one delayed fission neutron decay time but no MF = 5 data

2. Duplicate Eout in outgoing distribution
(Error # 3): *Bad Eout*

```
WARNING: skipping duplicate e_out = 4603090.0, i1 = 50 6 10.0
WARNING: skipping duplicate e_out = 4603100.0, i1 = 50 7 20.0
WARNING: skipping duplicate e_out = 4603110.0, i1 = 50 8 30.0
WARNING: skipping duplicate e_out = 4603130.0, i1 = 50 9 50.0
... plus 2 more instances of this message
```